Java

Swing

Introduction

- Java AWT (Abstract Window Toolkit) contains numerous classes and methods for creating and managing windows

- Java Swing (***javax.swing***) is built on the AWT

- Swing Concepts
  - Container
    - Heavyweight: JFrame, JApplet etc.
    - Lightweight: JPanel
  - Component
    - Jbutton, JLabel etc.

A Simple Swing

- Two ways to create a simple swing application
- *By creating an object of JFrame class*
  - *Example: SimpleFrame1.java*

- *By extending the JFrame class*
  - *Example: SimpleFrame2.java*

JFrame with Simple Components

- Simple JFrame
  - with a JLabel
  - with a JButton
  - with Default Layout
  - *Example: LabelFrame1.java*
- Simple JFrame
  - with a JLabel
  - with a JButton
  - with FlowLayout
  - *Example: LabelFrame2.java*

Event Handling

- Events are generated when user do some actions with the components (button click)

- Event handling are same for Swing and AWT

- The interface which is generally used for event handling - ***ActionListener***

- The class that implements the ActionListener interface must implement the following method

   public void actionPerformed (ActionEvent ae)

Event Handling

- The event name is ***ActionEvent***
  - getSource()
  - getActionCommand()
- Components registered to handle event by
  addActionListener (ActionListener al)
- ***Example****: EventFrame(1-3).java*

Some Components

- **JLabel**
  - *Example*: TestJLabelFrame.java

- **JTextField** and **JPasswordField**
  - *Example*: TestJTextFieldFrame.java

- **JButton**
  - *Example*: TestJButtonFrame.java

Some Components

- **JCheckBox**
  - *Example*: *TestJCheckBoxFrame.java*

- **JRadioButton**
  - *Example*: *TestJRadioButtonFrame.java*

- **JComboBox**
  - *Example*: *TestJComboBoxFrame.java*

Keyboard Events

- In Swing we can also detect key and mouse events
- Interface for key event handling - **KeyListener**
- The name of the functions are
  - keyTyped(KeyEvent ke)
  - keyPressed(KeyEvent ke)
  - keyReleased(KeyEvent ke)
- The event name is **KeyEvent**
  - getKeyChar(), getKeyCode()
- **Example**: *TestKeyListener.java*

Mouse Events

- Interface for mouse event handling - ***MouseListener***
- The name of the functions are
  - mouseClicked(MouseEvent me)
  - mousePressed(MouseEvent me)
  - mouseReleased(MouseEvent me)
  - mouseEntered(MouseEvent me)
  - mouseExited(MouseEvent me)
- The event name is ***MouseEvent***
  - getX(), getY()
- ***Example****: TestMouseListener.java*